

REMARKS

With the entry of this Amendment, claims 1-12 will be pending in this patent application.

PRIOR ART REJECTION

Claims 1-8 were rejected under 35 USC § 103(a) as being unpatentable over US 4503002 (Klebe et al.) in view of DE 1 163 784 (Schutte et al.) and US 5372795 (Mühlhofer et al.). Applicant traverses this rejection insofar as it might be deemed applicable to any of claims 1-12 as now presented.

As Applicant observed in the July 3, 2006 Reply to the April 3, 2006 Final Rejection, the invention disclosed and claimed in this application employs a fluidization vessel that is divided into a hydrophobizing section or device for hydrophobization and a deacidifying section or device for deacidification. Silica hydrophobization is carried out in the hydrophobizing section or device, and halogen gas, such as chlorine, which accompanies the silica from the hydrophobizing section or device is removed in the deacidifying section or device. In the hydrophobizing section or device, the silica is fluidized with an inert gas, generally nitrogen (N₂), and is treated with a hydrophobizing agent. In the deacidifying section or device, the silica is fluidized with an inert gas, typically nitrogen, and subjected to deacidification. Water is typically added to the fluidizing gas so that deacidification can be carried out in a water-containing atmosphere.

As explained in the specification of this application, since the fluidization vessel is divided into a hydrophobizing section or device and a deacidifying section or device, silica hydrophobization and deacidification are conducted separately thereby attaining and ensuring a high efficiency and reliability of the hydrophobizing treatment and deacidification treatment. The hydrophobic silica fine powder which passes out of the fluidization vessel, including both hydrophobizing section or device and deacidifying section or device, is collected by a second cyclone and a second filter, and the collected hydrophobic silica is returned to the deacidifying section or device.

In the Klebe et al. process and apparatus, silica hydrophobization and deacidification treatment are conducted only in the sole fluidized bed reactor 11, which cannot be fairly

characterized as having a deacidifying section that is divided from the hydrophobizing section. Consequently, the efficiency and reliability of silica hydrophobizing treatment and deacidifying treatment in the Klebe et al. process and apparatus is inferior to the efficiency and reliability of silica hydrophobizing treatment and deacidifying treatment in the apparatus disclosed and claimed by Applicant.

In the Klebe et al. process and apparatus, the reaction waste gases, consisting of hydrophobized silica, dimethyldichlorosilane, hydrogen chloride, nitrogen and steam are returned via line 13 and introduced to the suction side line of the conveying apparatus 7. On the other hand, in Applicant's disclosed and claimed inventive apparatus, the hydrophobic silica fine powder which flies out of both the hydrophobizing and deacidifying sections of the fluidization vessel is collected by the second cyclone and the second filter, and the thus-collected hydrophobic silica is returned to the deacidifying section or device. Applicant's apparatus is therefore quite different from the Klebe et al. apparatus. Because the hydrophobic silica collected and returned via line 13 in the Klebe et al. apparatus is repeatedly treated with a hydrophobizing agent such as dimethyldichlorosilane, the yield of hydrophobic silica in the Klebe et al. apparatus will be inferior to the yield of hydrophobic silica in Applicant's disclosed and claimed apparatus.

Regarding Schutte (DE 1,163,784, which corresponds to US 3924029), the Examiner said, "Schutte et al. discloses wherein the deacidification and hydrophobization can take place in separate zones as well as in a single zone (col. 4, lines 54-60). Therefore, it is disclosed that the hydrophobizing and deacidifying can be divided." The corresponding passage in US 3924029 reads, "It is particularly advantageous that the deacidification and the dehydration treatment do not necessarily have to take place in separate zones. The reaction conditions for the surface treatment are such that deacidification and dehydration can take place simultaneously." Applicant submits that this disclosure would lead a person of ordinary skill in the art *away from* a construction of the Klebe et al. apparatus that employs a fluidization vessel having hydrophobizing and deacidifying sections that are divided, as recited in Applicant's claims.

The Examiner acknowledges that Klebe et al. does not disclose apparatus employing filters. As a remedy for this deficiency in the Klebe et al. disclosure vis-à-vis the requirements of Applicant's claims, the Examiner cites Mühlhofer et al. The Examiner states, "Mühlhofer et al.

teaches that pyrogenically prepared silica can be separated from waste gases by filter (F1/F2) and cyclone (8, 10, 18). It would have been obvious to one of ordinary skill in the art at the time the Invention was made to also provide filters along with the cyclones in the device of Klebe et al. in order to achieve a desired level of separation as well as since filters are recognized by Mühlhofer et al. as known separation means for pyrogenically prepared silica."

In all of the embodiments of the Mühlhofer et al. apparatus, filters F1/F2 are interposed between combustion chamber 1 and components of the apparatus that carry out hydrophobization and deacidification. In the apparatus shown in Fig. 1, for example, these components are the hydrophobicization silo 3 and the moving-bed dryer 9. There are no filters or other components in the Mühlhofer et al. apparatus that can perform the task of the claimed second cyclone and second filter, i.e., "collecting hydrophobic silica fine powder which flies out of the fluidization vessel including both the hydrophobizing section or the device for hydrophobizing and the deacidifying section or the device for removing halogen gas."

Without acquiescing in the Examiner's proposed modification of the Klebe et al. apparatus, Applicant submits that, even if the Klebe et al. apparatus were so modified, the resulting apparatus could not meet the clear requirements of Applicant's claims.

New independent claim 9 and new dependent claims 10-12 call for "a conduit network extending between (1) the second cyclone and the second filter and (2) the deacidifying section or the device for removing halogen gas, the conduit network providing a flow path for returning hydrophobic silica collected by the second cyclone and/or the second filter to the deacidifying section or the device for removing halogen gas." Support for this claimed subject matter is provided by Fig. 1 of this application as filed. Obviously, there is no disclosure in Klebe et al., Schutte et al. and Mühlhofer et al. that offers even a remote suggestion of such an arrangement that effects recovery of hydrophobized silica.

In view of the foregoing observations, Applicant submits that no reasonable combination of the disclosures in Klebe et al., Schutte et al. and Mühlhofer et al. can properly serve as a basis for rejecting any of claims 1-12 under 35 USC § 103(a).

CONCLUSION

In view of the amendments, observations and arguments presented herein, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection stated in the outstanding Office Action and recognize the application as being in condition for allowance.

If unresolved matters remain in this application, the Examiner is invited to contact Frederick R. Handren, Reg. No. 32,874, at the telephone number provided below, so that these matters can be resolved expeditiously.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By


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